

Studies on Victorian bryophytes 4. The genus *Fabronia* Raddi

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Abstract

Fabronia australis Hook. is the only species of the moss genus *Fabronia* in Victoria. This species is described, its distribution in Victoria is delineated, and its conservation status is assessed. Victorian records of *F. hampeana* Sond. are rejected. (*The Victorian Naturalist* 123 (4), 2006, 212-215)

Introduction

Fabronia Raddi is the nominate genus of the family Fabroniaceae. Six species of *Fabronia* have been reported from Australia, and another has been reported from New Guinea. *Fabronia australis* Hook. has been reported from all states and territories except the Northern Territory (Streimann and Klazenga 2002), and from New Zealand (Beever *et al.* 1996). *Fabronia hampeana* Sond. has been reported from Western Australia, Victoria and New South Wales (Scott and Stone 1976, Streimann and Klazenga 2002).

Description

Fabronia australis Hook., *Musci Exotica* 2: 160 (1819)

Plants delicate, usually rather silky, pale to dark green, with short branches arising from a creeping leafy stem anchored to the substratum by rhizoids. **Rhizoids** in fascicles, arising from the primary stem and branches, reddish brown, smooth. **Leaves** narrowly to widely ovate, up to 1.1 x 0.4 mm on the stems, slightly smaller on branches, flat to slightly concave, weakly spreading from the stem and mostly turned to the dorsal side of the stem, apex ciliate with a long terminal cell, margins usually strongly dentate or ciliate but sometimes entire (Fig. 1a and d). **Costa** weak, single, ending at or above mid-leaf. **Cells** in mid to upper leaf thick-walled. \pm rhomboid and often slightly sigmoid, becoming rectangular towards the leaf base, extremely variable in size, 30–190 x 8–12 μ m but mostly of a similar size in each plant; alar cells quadrate, typically in about four rows but often many more and reaching a long way along the margin and almost to the costa.

Dioecious. **Sporophytes** on specialised branches at base of current year's growth; seta straw-coloured, about 5 mm long and

50–80 μ m in diameter. **Capsule** hemispherical to conical, up to about 1.0 mm long; operculum flat, with a small apiculus in the centre; peristome single, fragile, pale yellow to pale brown, strongly recurved when dry, of 16 paired teeth, strongly striate-papillose, the striations oriented in various directions (Fig. 1b). **Spores** brown to greenish brown, 12–20 μ m in diameter, warty-papillose. **Perichaetial leaves** (bracts) similar to the vegetative leaves but slightly larger and colourless.

Habitat: on dry, shaded soil in rock crevices and on ledges and cliffs, and on the bark of trees and cycads in sclerophyll forest.

Known distribution: WA, SA, Vic, Tas, NSW, ACT, Qld; also in NZ. In Victoria, occurs in a wide band across the state (Fig. 2), mainly in dry sclerophyll forest.

Selected Victorian specimens: MELU 7402 Whitfield, Mar 1970; MUCV 1960 Billy Goat Bend, Mitchell River, Apr 1973; MUCV 2537 Natural Bridge, Mt Eccles NP, Oct 1974.

Similar taxa

Once the marginal cilia are noted the genus is obvious, and then only the species is in question. In New Zealand, *Catharomnion ciliatum* (Hedw.) Wils. also has ciliate margins, but it is a larger species with rather flattened shoots and grows only on bark, and the leaves usually have a distinct margin of elongate cells (Beever *et al.* 1996). *Ischryodon lepturus*, *Brachythecium albicans* and *Hypnum cupressiforme* var. *mossmanianum* have a similar overall appearance to *Fabronia australis* but lack marginal teeth or cilia. Other taxa that have been mistaken for *F. australis* in Australian collections are *Brachythecium rutabulum* and *Hypnum cupressiforme* var. *cupressiforme*.

Discussion

All specimens of *Fabronia* from Victoria seen in this study are referable to *Fabronia australis*. It is a widespread species but does not seem to tolerate very dry or very wet environments. Most records are from dry sclerophyll forest or dry, rocky grassland or woodland. Under the current IUCN criteria (Hallingbeck *et al.*, 2000), *F. australis* must be classified as 'least concern' (LC) in Victoria and Australia, because it occurs in many widespread localities, including numerous conservation reserves. It appears to have declined slightly as a result of

urbanisation. For example, its only known present-day locality close to Melbourne is in the more or less undisturbed environment of Warrandyte State Park.

There is a great deal of confusion about other Australian 'species', and a thorough review is needed. Specimens in MEL named *F. baileyana* Müll. Hal. seem to be a form of *F. australis* with a long hair-point. In *F. brachyphylla* Müll. Hal., reported from New South Wales, the ACT and Queensland, the leaf apex is usually acuminate, without a hair-point or elongated apical cell, and the leaf margins are

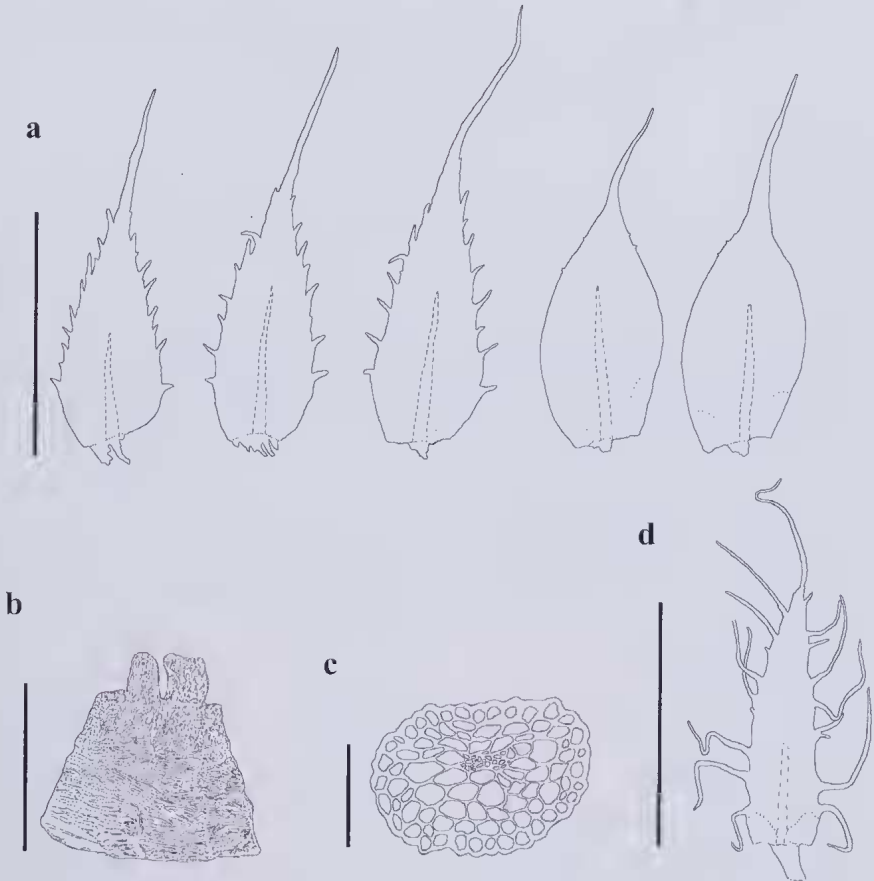


Fig. 1. *Fabronia australis*. a. Leaves: three typical on left, two atypical on right. b. Peristome tooth. c. Cross-section of stem, *Fabronia hampeana*. d. Typical leaf. Scale bars: a, d = 0.5 mm, b, c = 0.1 mm. a-c drawn from GAM Scott s.n., Alum Cliffs, near Launceston, Tasmania (MUCV 701), except two entire leaves, drawn from GAM Scott s.n., Millstream Falls, Qld (MELU 1606). d drawn from IG Stone 6296, Esperance, WA (MUCV 1631).



Fig. 2. Known distribution of *Fabronia australis* in Victoria. Open circles indicate records more than 50 years old.

entire or weakly toothed. But whether these characters are enough to separate *F. brachyphylla* from *F. australis* is very doubtful. Specimens in MEL given the names *F. novaevalesiae* Müll. Hal. and *F. obtusoacuminata* Müll. Hal. (both invalid names because they were published without a Latin diagnosis) seem to be identical to *F. brachyphylla*. Scott and Stone (1976) noted that *F. brachyphylla* has broad, obtuse leaves on most shoots, and that *F. scottiae* Müll. Hal. has acuminate leaves (i.e. lacking a ciliate hairpoint). Such a difference hardly seems enough to warrant separation as species, given the great variation seen in leaf form that occurs in *F. australis*. Furthermore, Scott and Stone (1976) suggested that *F. australis* might be a form of *F. ciliaris* (Brid.) Brid., a widespread species of the northern hemisphere.

The entire margins in a small number of specimens of *F. australis* could cause confusion, but when capsules are present the unusual pattern of striations on the peristome teeth is diagnostic. Scott and Stone (1976) described the seta as about 80 µm in diameter and the spores as green and about 12 µm in diameter, but specimens examined in this study have much narrower setae and spores are greenish-brown when mature and up to 20 µm in diameter.

Fabronia hampeana has a very woolly

appearance when dry because of the more ciliate and narrower leaves (Fig. 1d), but when moist it looks similar to *F. australis*. Furthermore, some narrow-leaved and very ciliate forms of *F. australis* (e.g. MUCV 1614, from Cambewarra Mountain in NSW) can closely resemble *F. hampeana*. In such cases, sporophytes are the best means of separation. The operculum in *F. hampeana* is rounded-conical and the seta is rather shorter (2 mm) and thicker (up to 100–115 µm). Other differences, such as cell size and strength of the costa, seem weak characters given their variability in *F. australis*. Of the numerous specimens called *F. hampeana* from various regions of Australia in MEL and MELU, only those from Western Australia are that species, so that it seems indeed to be endemic to that state. *F. australis* also occurs in Western Australia, but seems to be rare there.

The only other species recorded in Australasia is *F. curvirostris* Dozy and Molk., an Asian species reported from New Guinea by Norris and Kopönen (1990), who also rejected a record of *F. secunda* Mont. from there. *F. curvirostris* differs from other Australasian species in having papillae on at least some teeth and on the apical cell.

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Melbourne's Marvellous Mosses

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Abstract

The State Botanical Collection in the National Herbarium of Victoria (MEL) includes more than 49,000 mosses. MEL's Australian moss collection has been databased and curated and contains representatives of all Victorian taxa and 76% of Australian taxa. A timeline of MEL's Australian moss collections shows that during the 1940s–80s, the collection has benefited from the activities of three significant collectors – JH Willis, AC Beauglehole and IG Stone. Australia's Virtual Herbarium project provides access to MEL's moss data via the Royal Botanic Gardens website. (*The Victorian Naturalist* 123, (4), 2006, 215–221)

MEL's moss collection

The National Herbarium of Victoria (MEL) houses the State Botanical Collection which comprises approximately 1.2 million plant specimens including more than 49,000 mosses. There are currently 43,557 Australian moss specimens, with 44% of these from Victoria. There are more than 5,500 moss specimens collected from outside Australia, the majority of which are yet to be accessioned and curated. Numerous collections from New Zealand, the sub-Antarctic Islands, Indonesia and Canada have been curated and databased.

The diversity of the Australian moss collections at MEL may be investigated, as they have been databased. When comparing the taxa known from Australia with the taxa represented at MEL (Table 1), as one might expect MEL has the best representa-

Table 1. Number of Australian moss taxa per state (Streimann and Klazenga 2002) and number represented at MEL.

| | # Taxa | MEL coll'ns | % of taxa represented at MEL |
|-----------|--------|-------------|------------------------------|
| WA | 209 | 177 | 84.6 |
| NT | 111 | 726 | 4.9 |
| SA | 189 | 140 | 74.1 |
| QLD | 522 | 444 | 85.1 |
| NSW | 537 | 399 | 74.3 |
| LHI | 113 | 80 | 70.8 |
| ACT | 199 | 93 | 46.7 |
| Vic | 447 | 447 | 100.0 |
| Tas | 383 | 255 | 66.6 |
| MI | 85 | 42 | 49.4 |
| Australia | 1035 | 798 | 77.1 |